HERITAGE AWARD NOMINATION SUBMISSION

Janevale Bridge over Loddon River

on the

Tarnagulla Laanecoorie Road

As per the "Guide to Engineering Heritage Recognition Program – 2008" I submit the following proposal to nominate for a heritage award.

Name of Work : Janevale Bridge over Loddon River on the Tarnagulla Laanecoorie Road.

Suggested Award Type : National Engineering Heritage Landmark.

Location: At Laanecoorie in central Victoria - VicRoads Country Directory Map 43 F 7 (refer attached map)

Owner : Shire of Loddon (formerly the Shire of Marong and the Shire of Bet Bet)

Access to Site : Tarnagulla Laanecoorie Road.

Current and Former Use: Road Bridge

Designer : Sir John Monash

Builder : Sir John Monash (Reinforced Concrete and Monier Pipe Construction Company)

Year Started : 1910

Year Completed : 1911

Physical Description : 10 No. 12.8metre span Reinforced Concrete beam and slab.

Physical Condition : Very good

Modifications and Dates : Shear reinforcement added to beams (1930's ?)

Piers repaired & 25mm cover added to them, plus a protective concrete deck overlay added (1986)

Heritage Listings : Register of the National Estate

Register of Australian Historic Bridges

Shire of Loddon Planning Scheme.

Discussion :

As a VicRoads Engineer, my involvement was to prevent its demolition, and also to be involved in its rehabilitation - for which VicRoads received a State Roadside Conservation Committee award in 1990.

I guess I'm making this submission on behalf of the Shire of Loddon (the owners). They are in full agreement with the proposal (refer attached emails).

Plaquing Ceremony Date:

The intention is to hold a plaquing ceremony on the 10 August 2011 to mark 100 years from the official opening of this bridge.

Attachments :

1. Locality map.
2. Relevant pages from "Monash Bridges a Typology Study" by Geoff Taplin and Alan Holgate. This details the technical background and history of the structure.
3. Photographs of the structure.
4. Copies of the original plans of the structure.
5. Copy of the Bendigo Advertiser article on the rehabilitation work done in 1986
6. Various emails from the Shire of Loddon demonstrating their support for plaquing of this bridge.
7. Heritage Award Nomination Form

Lindsay Clay MIEAust CPEng

Appendix A Heritage Award Nomination Form

The Administrator
Engineering Heritage Australia
Engineers Australia
Engineering House
11 National Circuit
BARTON ACT 2600

Name of work: ***Janevale Bridge over Loddon River on the Tarnagulla Laanecoorie Road***

The above-mentioned work is nominated to be awarded a National Engineering Heritage Landmark

Location, including address and map grid reference if a fixed work:

At Laanecoorie in Central Victoria VicRoads Country Directory Map 43 F7 (refer attached map)

Owner (name & address): ***Shire of Loddon (formerly the Shire of Marong and the Shire of Bet Bet)***

Municipal Offices:

41 High Street, Wedderburn Victoria

PO Box 21, Wedderburn VIC 3518

Telephone: (03) 5494 1220

Facsimile: (03) 5494 3003

Email: dfuzzard@loddon.vic.gov.au

The owner has been advised of this nomination and a letter of agreement is attached. The shire of Loddon is in agreement with this nomination and is an active participant in this submission

Access to site: ***Tarnagulla Laanecoorie Road***

Nominating Body: ***Engineering Heritage Victoria***

Miles Pearce

Chair of Nominating Body

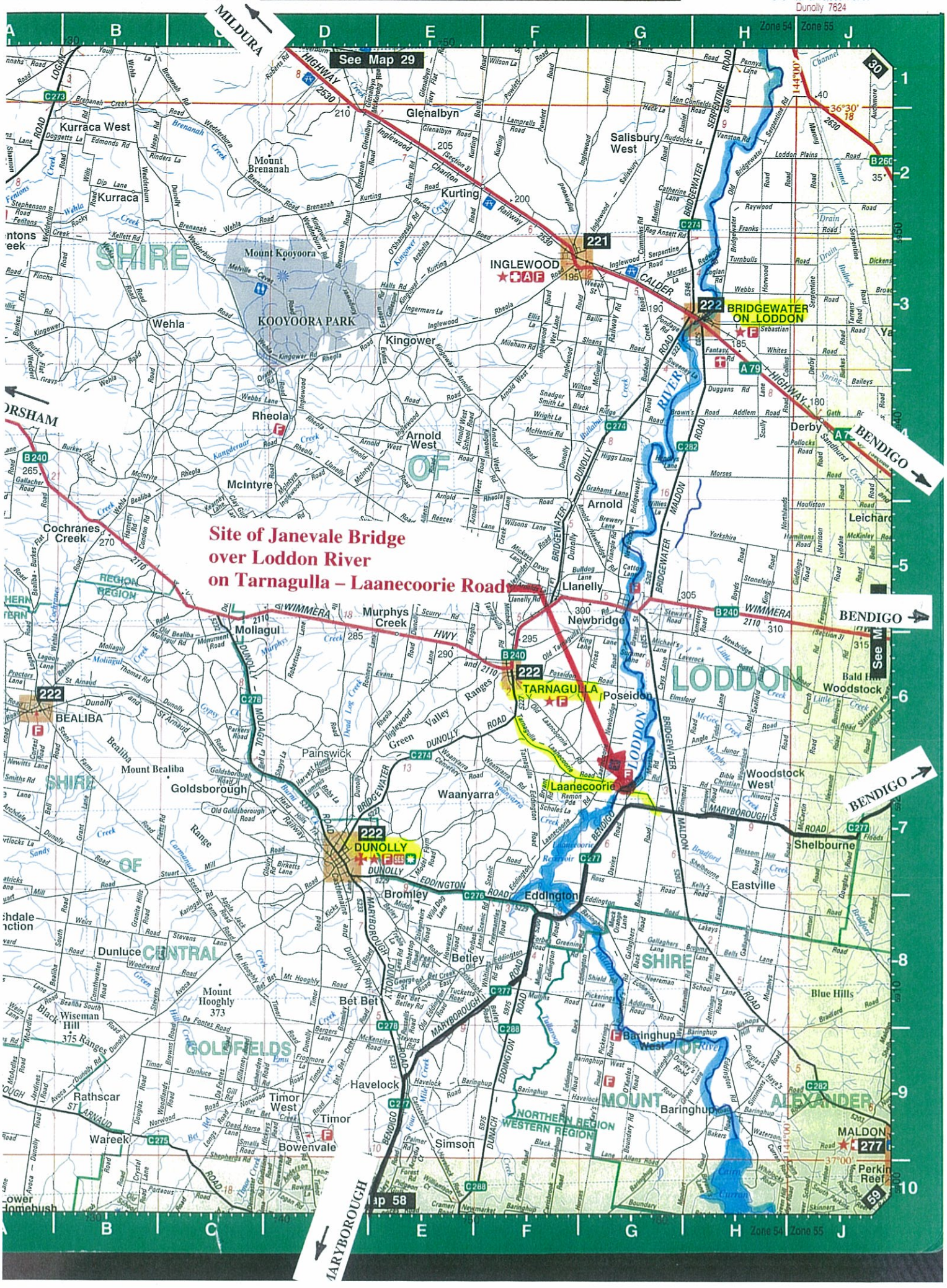
Date:

Chair of Divisional EHA Group

Date:

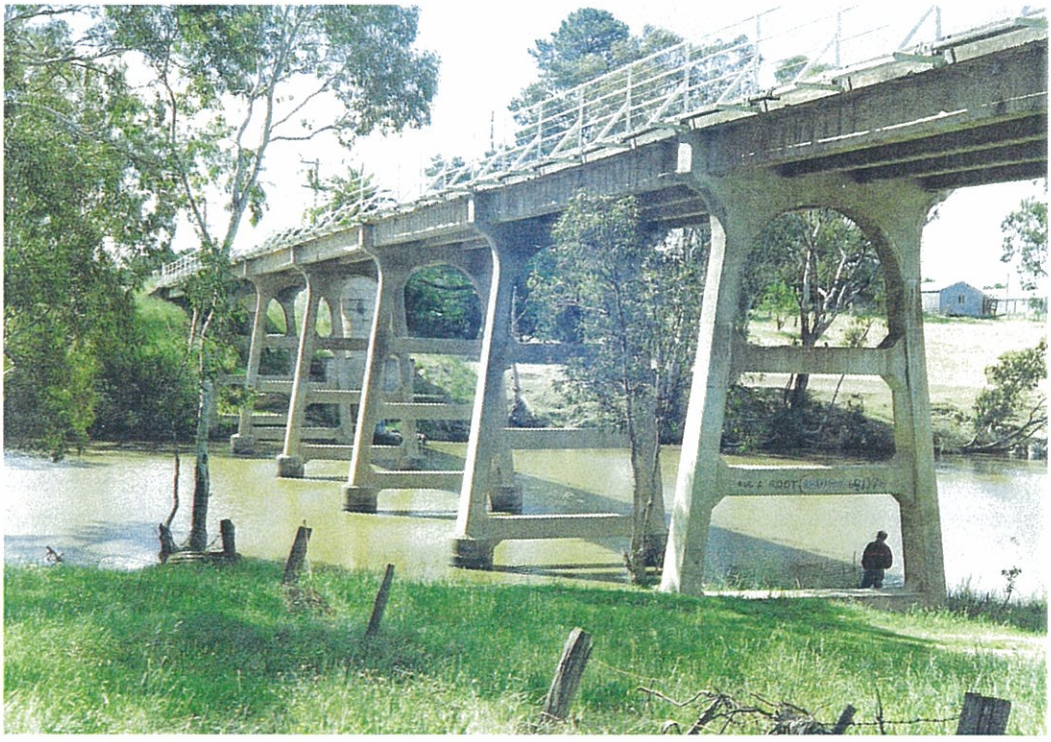
Map 43

Map Grid Australia lines shown in blue.
Zone 54 grid values shown in black.
Grid interval 10,000 metres
Dunolly 7624



Janevale Bridge (Laanecoorie Bridge)

Location	Loddon River, Tarnagulla Laanecoorie Road, Laanecoorie VR Map 43 F7
Municipality	Shire of Loddon formerly Shires of Marong & Bet Bet
Description	Girder: 10 × 12.8 metre spans
Dates	Tender December 1910, tested August 1911
Current use	Still in use
Existing heritage listing	Register of the National Estate Register of Australian Historic Bridges Shire of Bet Bet Heritage Study
Recommendations	State significance



Photograph by David Gilmartin

Description and technical analysis

This is the longest of the reinforced concrete girder bridges designed by John Monash, both in terms of span length and overall length, with 10 spans. The inner spans measure 42 feet (12.8 m) centre to centre of piers and the end spans 42 feet from centre of pier to face of abutment. It is also Monash's first use of splayed trestle piers in Victoria, although he used piers of a similar type for the Thebarton Tramway Bridge in Adelaide built by the South Australian Reinforced Concrete Co. in 1908.[1] There are four girders, giving an overall width of 18 feet (5.49 m) between handrails. The slender pier legs are splayed and form an arch at the cross-head, and are joined by one, two or three transoms, (depending on the length of the legs). The legs are tapered in the direction of span. Their vertical corners on the upstream side are heavily chamfered and protected by iron T sections embedded at 45 degrees so that the table of the T forms the face of the chamfer 2½ inches (64

mm) wide. Expansion joints are created at piers 1 and 9 by double trestles made thinner and spaced one inch (25 mm) apart. The four river piers are founded on reinforced concrete cylinders. The middle portions of the girder spans were originally without shear reinforcement. Evidence of later strengthening by the insertion of extra reinforcing into the beams is clearly visible. The abutments are mass concrete retaining walls. The iron handrailing, carried on plain iron standards is original.[2] A granite block supporting an iron lamp post (the lamp is missing) at the south approaches to the bridge commemorates the opening, with the names of the Shire Councillors.

History

Widespread flooding throughout Victoria in September 1909 provided Monash with an opportunity to promote his Company's reinforced concrete bridge designs. "Upwards of forty of our bridges were within the flood area", he wrote to a prospective customer, " but we have not heard of one penny worth of damage".[3] One municipality to suffer heavily from the flood was the Marong Shire, with the loss of several timber bridges, including one over the Bullock Creek on the Melbourne Road and the large Janevale bridge over the Loddon River at Laanecoorie, built in the 1870s to connect the mining district of Tarnagulla with Bendigo.[4]

The Shire Engineer, G. S. Read, prepared designs for the two bridges in timber. He also consulted Monash regarding the cost of reinforced concrete. Monash estimated £520 for Bullock Creek and £4000 for Janevale, and had a design drawn up for the Bullock Creek bridge. Although he was keen to get such a large job, Monash was reluctant to spend time on designs for Janevale until he knew his chances of getting the contract. He sounded out Kermode of the Public Works Department, for a "private hint" about his chances with the prices mentioned. Kermode considered Read's estimate of £4100 for his timber design for Janevale much too low, and also thought Monash's estimate of £4000 low for reinforced concrete. He expressed surprise that Monash was bothering about such a small job as Bullock Creek bridge. But for Monash no job was too small, especially if it could lead to a bigger one. His tender of £525 for the Bullock Creek bridge was defeated by J. Smith's tender of £403 for the timber design.[5]

Meanwhile, Monash, encouraged by Kermode's remarks about prices and Read's assurance that he and his council favoured reinforced concrete, set about developing a design for the Janevale Bridge. In consultation with Read, a design of ten 40 foot spans was settled on and J.A. Laing commenced the drawings. Alternative tenders for timber and reinforced concrete were called in mid February 1910.[6] Although Monash's tenders were "well in the running" there were a couple of concerns to resolve. Firstly Read was particularly concerned about the slender columns, and wanted them thickened against floating timbers. Monash replied that "the employment of a large bulk of concrete in this way is quite opposed to the principles of reinforced concrete design", but offered to provide extra protection on the upstream side of the columns using iron T sections (as explained above). Secondly, the Councillors were worried that the Company would add on extras after the contract. Monash responded indignantly to the "accusation that this Company endeavours to make capital out of extras" offering an additional clause in the contract that no extras would be paid for unless authorised by Council.[7]

Satisfied, Marong council accepted the tender on 12 March. As the bridge was to be a joint project with the neighbouring Shire of Bet Bet, the plans were forwarded to that council for approval. Bet Bet Council delayed proceedings while they sought an increased government grant, and succeeded in obtaining an increase of £300 on the £1300 already offered.[8] By the time the Public Works Department approved the plans it was September. Work commenced in October.[9] In December Read suspended the work because of a serious dispute over gauging (measuring) the cement for the concrete, with Monash giving in to Read's demands to avoid bad publicity.[10] The concrete work was completed in May and the bridge was tested satisfactorily on 19 July 1911. The final cost was £4058.[11]

The local people had put up with two years of inconvenience – the lack of a bridge meant a 6 mile detour for many – so the opening of the new bridge on 10 August was a cause for celebration. It was also an expression of civic pride. At 420 feet, Janevale bridge was the longest

of its kind in Australia, surpassing the previous record holder, Benalla Bridge, by 20 feet. The ceremony was attended by 600 people, including councillors from neighbouring municipalities, members of parliament and the Maldon Brass Band, and followed by a banquet with the usual political and congratulatory speeches. As at Benalla, the Shire Engineer was given credit for the design – and his 2½% commission. The Reinforced Concrete & Monier Pipe Construction Co., represented on the day by Alex Lynch, was acknowledged merely as construction contractor.[12]

In January 1912, the new Shire Engineer, Mr LeCoq, discovered cracks in the bridge. Monash made light of the matter – only five cracks, it was usual to find cracks due to thermal expansion – but Council withheld the final payment until another test was made. As far as Monash was concerned, a severe test had been made, and he had a certificate to prove it. He attributed LeCoq's concern to his lack of experience with reinforced concrete, and strongly objected to the suggestion that an engineer in private practice be called in to arbitrate, because there was no such engineer with the appropriate experience. Clearly Monash regarded himself as *the* expert in reinforced concrete. Kermode, Catani and Read were brought into the discussion, another test was conducted and the argument dragged on until May.[13] Whether Council were eventually satisfied with the outcome is not known.

In the 1930s the Country Roads Board found that the early T-beam bridges had insufficient shear reinforcing in the beams. Janevale Bridge was found to have extensive cracking in the beam stems and was unsafe for wheat traffic. The Board carried out strengthening work by cutting chases down the sides of the beams and inserting U stirrups.[14] The bridge currently has a 12 tonne limit on it.

Significance

Janevale Bridge is the largest reinforced girder bridge designed and built by John Monash and the Reinforced Concrete & Monier Pipe Construction Co. and the largest bridge of its kind built in Victoria, and possibly Australia prior to the First World War. Although representative of early T-beam construction, this bridge also exhibits the rare use of splayed trestle piers in reinforced concrete, reminiscent of the traditional timber trestle bridges, and is quite a departure from Monash's earlier designs in Victorian bridges. While functional in design, the bridge displays an elegance rare in early reinforced concrete bridges, and forms part of an aesthetically pleasing river landscape. Janevale Bridge also has historic significance as part of the transport link between the Tarngulla gold mining district and the regional centre of Bendigo. Its national significance has already been recognised. It is also of state significance.

Notes

[1] *The design of the Thebarton Bridge has been attributed by other authors to W. G. T. Goodman, General Manager of the Metropolitan Tramways Trust and to J. Bowman, engineer to the Trust, see Radcliffe, J.C.,* Adelaide Road Passenger Transport 1836–1958, Adelaide 1974, *and Lewis, M.,* 200 Years of Concrete in Australia, *1988. However it is quite clear from the drawings held in the John Thomas collection and from Company records, Box 71 File 775, that it is the work of Monash and his staff.*

[2] *The handrailing shown on the drawings appears to be timber, however photographs taken just after completion show the iron railings. Three rows of heavy wire have been added between the rails at a later date.*

[3] *To W. Anderson, Wangaratta Shire Engineer, 20 January 1910, Letterbook 1909–10, Company records. (In this case the Company's tender was not successful).*

[4] Bendigonian, *15 August 1911.*

[5] *Company records, Box 70 File 773, Box 79 File 832[b] includes correspondence with Kermode, January 1910.*

[6] *Box 79 File 832[a] & [b]; tender called,* Age *12 February 1910.*

[7] *File 832[b] Monash to Read 4, 7 & 9 March 1910.*

[8] Ibid, *Read to Monash, 24 March 1910;* Bendigonian, *15 August 1911.*

[9] *Read to Monash 23 September; first materials requisition dated 12 October 1910, Company records.*

[10] *Correspondence between Read, Monash and Kermode 9 December 1910 to 9 January 1911.*

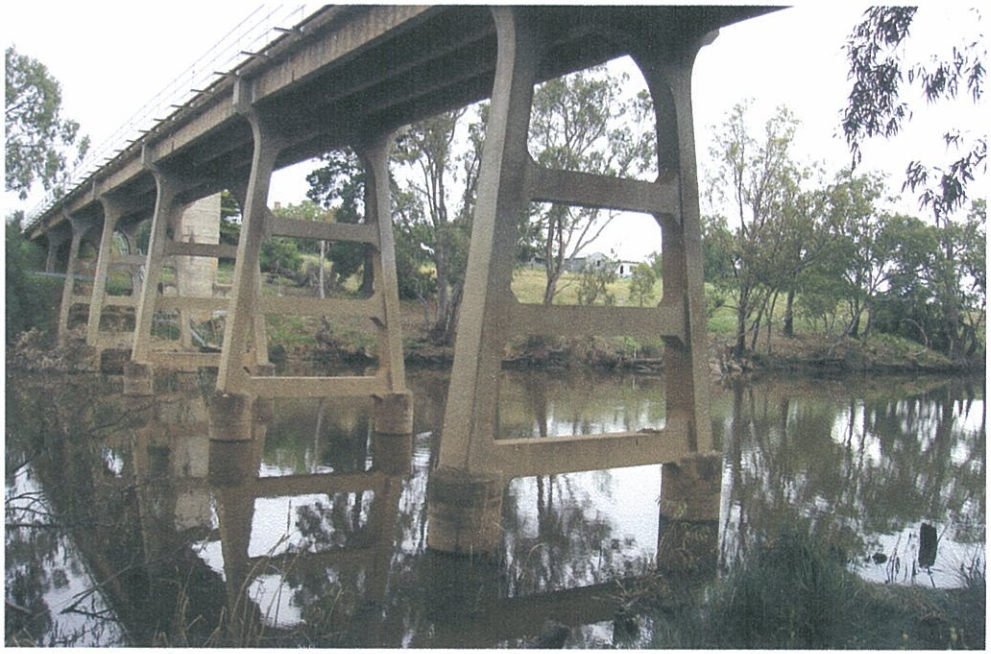
[11] *Company records, File 832.*

[12] Bendigonian, *15 August 1911.*

[13] *File 832[a] correspondence between Shire Secretary Kyne and Monash 19 January to 21 May 1912.*

[14] *Country Roads Board* Annual Report, *1940, p.35.*

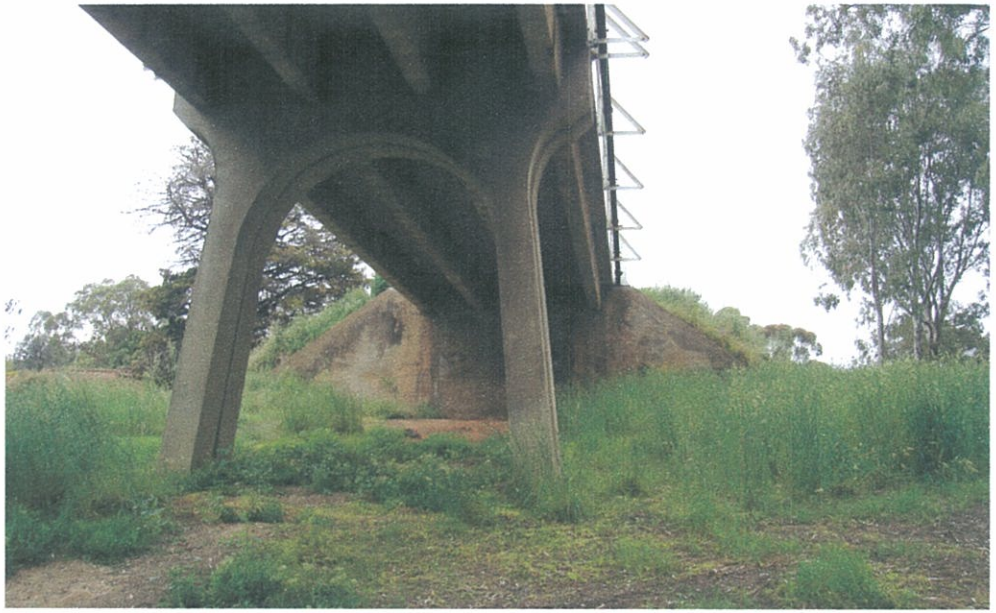
Janevale Bridge general view of deck looking east



Janevale Bridge looking from east bank of river

Looking downstream (northward) toward Janevale Bridge

General view of Janevale Bridge from Laanecoorie side (looking west)

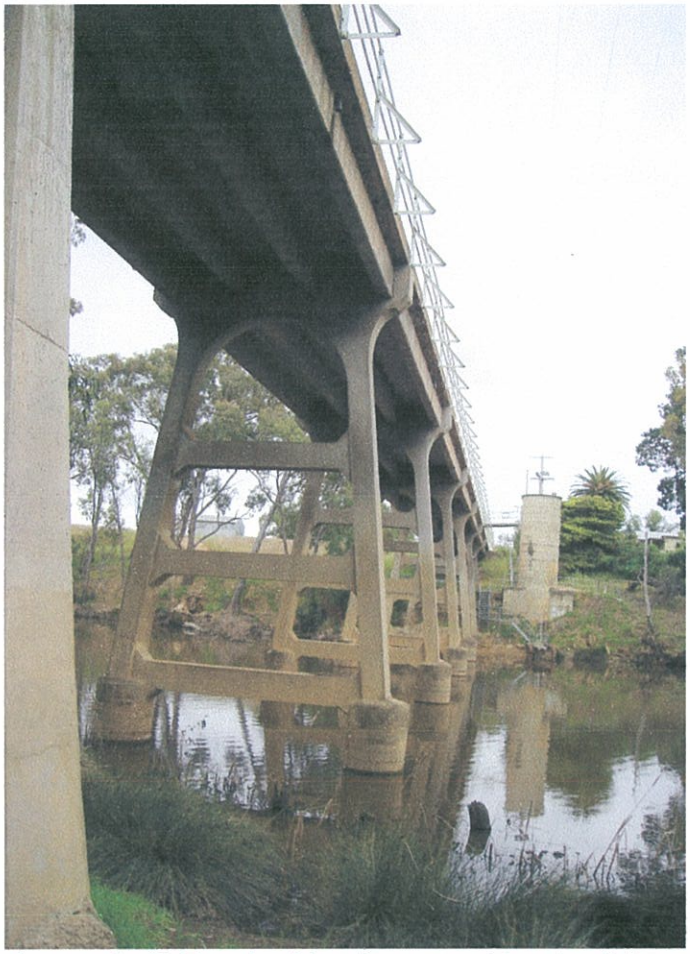


Janevale Bridge - close up of eastern abutment and pier No1. Note split pier expansion arrangement

Janevale Bridge - close up of eastern abutment and pier No1. Note split pier expansion arrangement

Looking downstream (northward) toward Janevale Bridge. Note stripes on beams where additional shear stirrups were added during the 1930's

Janevale Bridge close up of deck expansion joint directly over Pier 1



Janevale Bridge looking from east bank of river

General view of Janevale Bridge from Laanecoorie side (looking west). Note light post with granite base obelisk used for official opening

Lindsay Clay/VicRoads
30/10/2006 12:11 PM

To jmclinden@loddon.vic.gov.au
cc
bcc
Subject Janevale Bridge over Lodden River at Laanecoorie

Ext: 4705
Fax: 54226081
File Name:
Business Area: Calder Corridor
Internet: lindsay.clay@roads.vic.gov.au
File Description:

G'day John, how are you.

Firstly congratulations on your appointment as CEO. I guess you are well and truly in the groove by now.

John the purpose of this e-mail is to sound you out on obtaining an Institution of Engineers Heritage classification for the above.

The situation is as follows:
Back in the 1980's ? VicRoads undertook extensive repairs to this structure. This was done because both Marong & Bet Bet shires did not wish to undertake the task.. Myself and Geoff Bolling were heavily involved in this, and VicRoads received a Victorian Government conservation award for the work.
Tom Glazebrook (who was our boss at the time) is keen to have the bridge on the Institution of Engineers register. However he is now over 80 and is a bit beyond arranging it himself. He has therefore asked me if I would be prepared to run with it (I'm a bit of a fan of Monash, having been involved in restoration/ preservation of a number of his structures in Bendigo) .

Janevale bridge is a Historic Place under the Planning Scheme and is included on the Victorian Heritage Register under the Heritage Act. Also, according to my reading of the Institution of Engineers guidelines, I think it has the credentials for IEAust recognition.

As part of the process the Institution of Engineers would:
- be keen to have the active support of the municipality,
- like to have the municipality involved in such matters as arranging and participating in an official ceremony etc.

Therefore prior to me proceeding with an application I am seeking your views on whether or not the Shire would be prepared to be involved in having the bridge recognised by the Institution.

Thanks in anticipation.

regards,

Lindsay Clay
Construction Engineer
CALDER CORRIDOR PROJECT
54220705

Lindsay Clay

From: Darren Fuzzard [DFuzzard@loddon.vic.gov.au]
Sent: Friday, 19 November 2010 3:32 PM
To: Lindsay Clay
Cc: John McLinden
Subject: RE: JANEVALE BRIDGE - LODDON RIVER

Hi Lindsay,

I see no problem with the Shire meeting each of your three requests below.

Darren

LODDON
SHIRE

Darren Fuzzard
Director Operations

Municipal Offices:
41 High Street, Wedderburn Victoria
PO Box 21, Wedderburn VIC 3518

Telephone: (03) 5494 1220
Facsimile: (03) 5494 3003

Email: dfuzzard@loddon.vic.gov.au

www.loddon.vic.gov.au

From: Lindsay Clay [mailto:lindsayclay@bigpond.com]
Sent: Tuesday, 9 November 2010 10:07 PM
To: Darren Fuzzard
Subject: FW: JANEVALE BRIDGE - LODDON RIVER

G'day Darren,

I refer to the email below from Owen Peake from EHV re Janevale Bridge.

I have spoken to Owen and clarified a few issues with respect to my submission. He is very enthusiastic re the whole thing. Apparently there is a push on for greater recognition of Monash (and others) in the lead up to the 100 year anniversary of the Anzac landing in 1915.

He left me with the impression that Janevale should receive the highest award recognition.

I now have to make a formal submission (4 printed copies plus an electronic version plus photos etc.). I hope to have this done within a couple of weeks.

Owen believes we should have plenty of time to meet my suggested August date. He reckons the major issues that need resolution are:
- Sorting out with the owners (i.e. the Shire) a suitable location for the interpretive sign, and getting it manufactured and erected.
- Organising the official ceremony (i.e. settling on a date, inviting appropriate dignitaries, making the necessary local arrangements etc.)

So in order to keep the ball rolling I would appreciate your comments on the following.

1. Is Wednesday 10 August 2011 (i.e. exactly 100 years from the official opening) a suitable date as far as the Shire is concerned?

2. Do you foresee any issues in the Shire; selecting a suitable location, designing, arranging manufacture, and erecting, a suitable interpretive sign?

3. The Shire organising an appropriate ceremony.

regards

Lindsay Clay